What Is Claimed Is:

1. A method of using a fluorescent cannabinoid compound comprising:

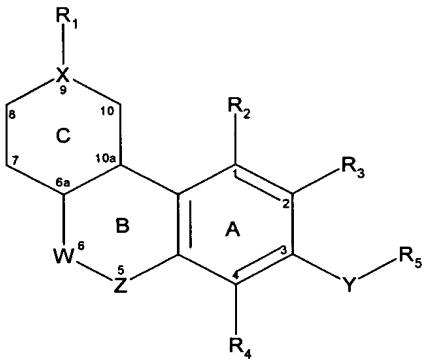
providing a cannabinoid compound having an endogenous fluorescent property;

exciting the cannabinoid compound; and

detecting the electromagnetic radiation fluorescently emitted by the cannabinoid compound.

2. The method of claim 1, a wherein the electromagnetic radiation fluorescently emitted by the cannabinoid compound is in the ultraviolet-visible wavelength ranges.

3. The method of claim 1, a wherein the fluorescent cannabinoid compound has the structural formula



wherein:

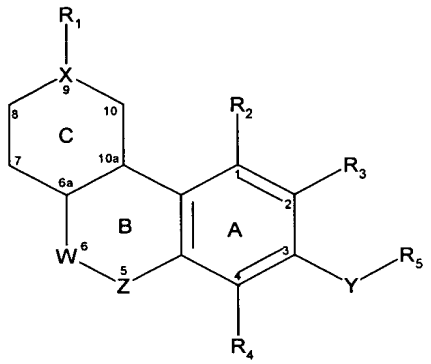
Y comprises an electron rich element; and

W comprises C=O and the C ring has a double bond in the 6a-10 position; or

R1 comprises =O and the C ring has a double bond in the 10-10a position; or

W comprises C=O and the C ring is aromatic.

4. The method of claim 1, a wherein the fluorescent cannabinoid compound has the structural formula



wherein:

W comprises C=O and the C ring has a double bond in the 6a-10 position; or

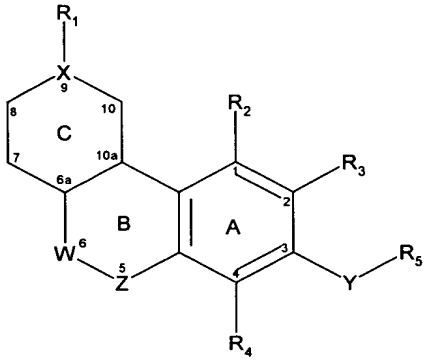
R1 comprises =O and the C ring has a double bond in the 10-10a position; or

W comprises C=O and the C ring is aromatic; and

Y comprises O, S, NH, N-alkyl, N-substituted alkyl, N=N, C=C or C≡C.

5. The method of claim 1, wherein the step of detecting comprises quantifying the electromagnetic radiation fluorescently emitted by the cannabinoid compound.

6. The method of claim 1, wherein the cannabinoid compound comprises compound formula I, and physiologically acceptable salts thereof,



I

wherein:

the C ring contains one double bond;

W comprises C=O, C=S or $C=CH_2$;

X comprises C, CH, N, S, O, SO or SO_2;

Y comprises O, S, NH, N-alkyl, N=N, C=C or C≡C;

Z comprises O, NH, N-alkyl where the alkyl group has 1 to about 5 carbon atoms or N-substituted alkyl, where the alkyl group has 1 to about 5 carbon atoms and is substituted with at least one substituent group in any possible position;

when X is S, O, SO or SO_2, R_1 is not present, or

when X is N, R_1 comprises H, alkyl, alkoxy-alkyl, alkylmercapto, alkylamino, SO_3alkyl, $SO_2NQ_1Q_2$, $CONQ_1Q_2$ or alkyl substituted in any possible position with at least one member selected from OH, CHO, COOH, C(halogen)$_3$, N_3, NCS, CN, PO_3H_2, SO_3H, or SO_3alkyl, or

when X is C or CH, R_1 comprises any possible member selected from H, halogen, N_3, NCS, CN, NO_2, NQ_1Q_2, =O, OQ_3, OAc, O-acyl, O-aroyl, NH-acyl, NH-aroyl, CHO, C(halogen)$_3$, $COOQ_3$, PO_3H_2, SO_3H, SO_3alkyl, $SO_2NQ_1Q_2$, $CONQ_1Q_2$, $=CH_2$, alkyl, alcohol, alkoxy, alkylmercapto, alkylamino, di-alkylamino or alkyl substituted in any possible position with at least substituent group,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 comprises H, alkyl, alcohol, or alkyl-NQ_1Q_2;

R_2 comprises H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, NQ_1Q_2, $COOQ_3$, OQ_3, CQ_3, C(halogen)$_3$, alcohol, NH-COalkyl, NH-COaryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T_1, NH-alkyl-T_1, NH-T_1, SO_3alkyl, $SO_2NQ_1Q_2$,

T_1 is in any possible position and comprises PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbons, tetrahydropyrrole, morpholine,

thiomorpholine, piperazine, a heterocyclic ring or NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring or a heteroaromatic ring,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 comprises H, alkyl, alcohol, or alkyl-NQ_1Q_2;

R_3 comprises H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 or an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members;

R_4 comprises H, OH, halogen, CN, N_3, NCS, NQ_1Q_2 or an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 comprises -D_1-D_2-T_2 or -D_2-T_2,

D_1, if present, comprises an alkyl group, a carbocyclic ring, a heterocyclic ring, N-alkyl or NH,

D_2 comprises an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, a heterocyclic ring, an aromatic ring, a heteroaromatic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3 or adamantan-2-ylidenemethyl-T_3, alkylamino, di-alkylamino or NH,

T_2 comprises, in any possible position, a substituent group or -CO-T_4,

T_3 comprises an alkyl group having from 0 to about 9 carbon atoms,

T_4 comprises H, C(halogen)$_3$, OH, NH_2, alkylamino, di-alkylamino, NO_2, alkyl, alkoxy, a heterocyclic ring or a heteroaromatic ring.

7. The method of claim 6 wherein X is C or CH and R_1 comprises any possible member selected from H, halogen, $=CH_2$, an alkyl group having 1 to about 5 carbon atoms or an alkyl group having 1 to about 5 carbon atoms and substituted in any possible position with at least one member selected from OH, CHO, COOH, CH_2OH, halogen, C(halogen)$_3$, N_3, NCS, CN, PO_3H_2, SO_3H, SO_3alkyl, $SO_2NQ_1Q_2$, $CONQ_1Q_2$ or NQ_1Q_2.

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members.

8. The method of claim 6 wherein R_5 comprises -D_1-D_2-T_2 or -D_2-T_2,

D_1 comprises a carbocyclic ring having 5 to 6 ring members, a heterocyclic ring having 5 to 6 ring members and 1,3 di-heteroatoms each independently selected from O, S, N and NH,

D_2 comprises an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3 or adamantan-2-ylidenemethyl-T_3, alkylamino, di-alkylamino or NH,

T_2 comprises, in any possible position, a substituent group or -CO-T_4,

T_3 comprises an alkyl group having from 0 to about 9 carbon atoms, and

T_4 comprises alkyl, a heterocyclic ring or a heteroaromatic ring.

9. The method of claim 6 wherein:

the C ring comprises a double bond in the 6a-10a position;

W is C=O;

X comprises C or N;

Y comprises O, S, NH, N-alkyl, N=N, C=C or C≡C;

Z is O;

R_1 comprises OH, CH_2OH; halogen or $C(halogen)_3$;

R_2 comprises H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, NQ_1Q_2, $COOQ_3$, OQ_3, NH-COalkyl, NH-CO-aryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T_1, NH-alkyl-T_1, NH-T_1, SO_3alkyl, $SO_2NQ_1Q_2$ or $CONQ_1Q_2$,

T_1 is in any possible position and comprises PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring or NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring or a heteroaromatic ring,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 comprises H, alkyl, alcohol or alkyl-NQ_1Q_2;

R_3 comprises H, OH, halogen, CN, N_3, NCS, NQ_1Q_2 or an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members;

R_4 comprises H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 or an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 comprises -D_1-D_2-T_2 or -D_2-T_2,

D_1, if present, comprises alkyl, a carbocyclic ring, a heterocyclic ring, alkylamino or NH,

D_2 comprises an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3, or adamantan-2-ylidenemethyl-T_3, alkylamino, di-alkylamino or NH,

T_2 comprises, in any possible position, a substituent group or -CO-T_4,

T_3 comprises an alkyl group having from 0 to about 9 carbon atoms,

T_4 comprises H, C-(halogen)$_3$, OH, NH_2, NO_2, alkyl, alkoxy, alkylamino, di-alkylamino, a heterocyclic ring or a heteroaromatic ring.

10. The method of claim 6 wherein:

the C ring comprises a double bond in the 6a-10a position;

W is C=O;

X comprises C or N;

Y comprises O, S, NH, N-alkyl, N=N, C=C or C≡C;

Z is O;

R_1 comprises OH, CH_2OH; halogen or $C(halogen)_3$;

R_2 comprises H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, NQ_1Q_2, $COOQ_3$, OQ_3, NH-COalkyl, NH-CO-aryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T_1, NH-alkyl-T_1, NH-T_1, SO_3alkyl, $SO_2NQ_1Q_2$ or $CONQ_1Q_2$,

T_1 is in any possible position and comprises PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring or NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring or a heteroaromatic ring,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 comprises H, alkyl, alcohol, or alkyl-NQ_1Q_2;

R_3 comprises H, OH, halogen, $C(halogen)_3$, CN, N_3, NCS, NQ_1Q_2 or an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members;

R_4 comprises H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 or an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 comprises $-D_1-D_2-T_2$ or $-D_2-T_2$,

D_1 comprises, if present, an alkyl, a carbocyclic ring having 4 to 6 ring members or a heterocyclic ring having 4 to 6 ring members and 1,3 di-heteroatoms each heteroatom independently selected from O, S and N,

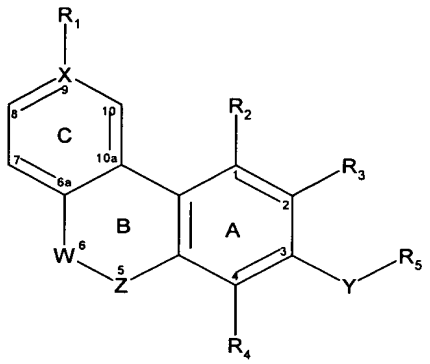
D_2 comprises an alkyl group having from one to about sixteen carbon atoms, alkylamino, d-alkylamino, NH, a bicyclic ring, a tricyclic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3 or adamantan-2-ylidenemethyl-T_3,

T_2 comprises, in any possible position, a substituent group or $-CO-T_4$,

T_3 comprises an alkyl group having from 0 to about 9 carbon atoms,

T_4 comprises alkyl, C(halogen)$_3$ aminoalkyl, di-aminoalkyl, NH2, a heterocyclic ring or a heteroaromatic ring.

11. The method of claim 1 wherein the cannabinoid compound comprises compound formula II, and physiologically acceptable salts thereof,



II

wherein:

W comprises C=O, C=S, or $C=CH_2$;

X comprises C, CH or N;

Y comprises O, S, NH, N-alkyl, N=N, C=C or C≡C;

Z comprises O, NH, N-alkyl where the alkyl group has 1 to about 5 carbon atoms or N-substituted alkyl, where the alkyl group has 1 to about 5 carbon atoms and is substituted with at least one substituent group in any possible position;

R_1 comprises any possible member selected from H, halogen, N_3, NCS, CN, NO_2, NQ_1Q_2, OQ_3, OAc, O-acyl, O-aroyl, NH-acyl, NH-aroyl, CHO, $C(halogen)_3$, $COOQ_3$, PO_3H_2, SO_3H, SO_3alkyl, $SO_2NQ_1Q_2$, $CONQ_1Q_2$, alkyl, alkyl substituted in any possible position with at least one substituent group,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 comprises H, alkyl, alcohol, or alkyl-NQ_1Q_2;

R_2 comprises H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, NQ_1Q_2, $COOQ_3$, OQ_3, alcohol, NH-COalkyl, NH-COaryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, $SO_2NQ_1Q_2$, $CONQ_1Q_2$, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T1, NH-alkyl-T_1, NH-T_1, SO_3alkyl, $SO_2NQ_1Q_2$,

T_1 is in any possible position and comprises PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring or NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring or a heteroaromatic ring,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 comprises H, alkyl, alcohol, or alkyl-NQ_1Q_2;

R_3 comprises H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 or C1 to C4 alkyl,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members;

R_4 comprises H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 or C1 to C4 alkyl;

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 comprises $-D_1-D_2-T_2$ or $-D_2-T_2$,

D_1, if present, comprises alkyl, a carbocyclic ring, a heterocyclic ring, alkylamino or NH,

D_2 comprises an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, a heterocyclic ring, an aromatic ring, a heteroaromatic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3, or adamantan-2-ylidenemethyl-T_3, alkylamino, di-alkylamino or NH,

T_2 comprises, in any possible position, a substituent group or $-CO-T_4$,

T_3 comprises an alkyl group having from 0 to about 9 carbon atoms,

T_4 comprises H, C(halogen)$_3$, OH, NH_2, NO_2, alkyl, alkoxy, a heterocyclic ring or a heteroaromatic ring.

12. The method of claim 11 wherein W comprises C=O.

13. The method of claim 11 wherein R_1 comprises any possible member selected from H, halogen, OH, an alkyl group having 1 to about 5 carbon atoms or an alkyl group having 1 to about 5 carbon atoms and substituted in any possible position with at least one member selected from OH, CHO, COOH, C(halogen)$_3$, N_3, NCS, CN, PO_3H_2, SO_3H or SO_3alkyl.

14. The method of claim 11 wherein R_5 comprises $-D_1-D_2-T_2$ or $-D_2-T_2$,

D_1, if present, comprises alkyl, a carbocyclic ring having 4 to 6 ring members or a heterocyclic ring having 4 to 6 ring members and 1,3 di-heteroatoms each heteroatom independently selected from O, S and N,

D_2 comprises an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-

ylmethyl-T_3 or adamantan-2-ylidenemethyl-T_3, alkylamino, di-alkylamino or NH

T_2 comprises, in any possible position, a substituent group or -CO-T_4,

T_3 comprises an alkyl group having from 0 to about 9 carbon atoms, and

T_4 comprises alkyl, a heterocyclic ring or a heteroaromatic ring.

15. The method of claim 11 wherein:

W is C=O;

X comprises C or N;

Y comprises O, S, NH, N-alkyl, N=N, C=C or C≡C;

Z is O;

R_1 comprises methyl, OH , CH_2OH; halogen or C(halogen)$_3$;

R_2 comprises H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, C(halogen)$_3$, NQ_1Q_2, $COOQ_3$, OQ_3, NH-COalkyl, NH-CO-aryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T_1, NH-alkyl-T_1, NH-T_1, SO_3alkyl, $SO_2NQ_1Q_2$ or $CONQ_1Q_2$,

T_1 is in any possible position and comprises PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring or NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring or a heteroaromatic ring,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 comprises H, alkyl, alcohol, or alkyl-NQ_1Q_2;

R_3 comprises H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 or an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members;

R_4 comprises H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 or an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 comprises -D_1-D_2-T_2 or -D_2-T_2,

D_1, if present, comprises a carbocyclic ring, a heterocyclic ring, alkylamino or NH,

D_2 comprises an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3, or adamantan-2-ylidenemethyl-T_3, alkylamino, di-alkylamino or NH,

T_2 comprises, in any possible position, a substituent group or -CO-T_4,

T_3 comprises an alkyl group having from 0 to about 9 carbon atoms,

T_4 comprises H, C(halogen)$_3$, OH, NH_2, NO_2, alkyl, alkoxy, alkylamino, di-alkylamino, a heterocyclic ring or a heteroaromatic ring.

16. The method of claim 11 wherein:

W is C=O;

X comprises C or N;

Y comprises O, S, NH, N-alkyl, N=N, C=C or C≡C;

Z is O;

R_1 comprises methyl, OH or CH_2OH;

R_2 comprises H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, $C(halogen)_3$, alcohol, NQ_1Q_2, $COOQ_3$, OQ_3, NH-COalkyl, NH-CO-aryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T_1, NH-alkyl-T_1, NH-T_1, SO_3alkyl, $SO_2NQ_1Q_2$ or $CONQ_1Q_2$,

T_1 is in any possible position and comprises PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring or NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring or a heteroaromatic ring,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 comprises H, alkyl, alcohol, or alkyl-NQ_1Q_2;

R_3 comprises H, OH, halogen, $C(halogen)_3$, CN, N_3, NCS, NQ_1Q_2 or an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members;

R_4 comprises H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 or an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 comprises $-D_1-D_2-T_2$ or $-D_2-T_2$,

D_1, if present, comprises an alkyl, a carbocyclic ring having 4 to 6 ring members or a heterocyclic ring having 4 to 6 ring members and 1,3 di-heteroatoms each heteroatom independently selected from O, S and N,

D_2 comprises an alkyl group having from one to about sixteen carbon atoms, alkylamino, d-alkylamino, NH, a bicyclic ring, a tricyclic terpine, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3 or adamantan-2-ylidenemethyl-T_3,

T_2 comprises, in any possible position, a substituent group or $-CO-T_4$,

T_3 comprises an alkyl group having from 0 to about 9 carbon atoms, and

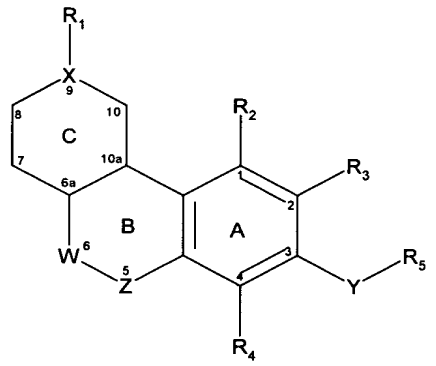
T_4 comprises alkyl, C(halogen)$_3$ aminoalkyl, di-aminoalkyl, NH2, a heterocyclic ring or a heteroaromatic ring.

17. The method of claim 1 comprising the step of combining the cannabinoid compound with a sample.

18. The method of claim 1 comprising the step of interacting the cannabinoid compound with a cannabinoid receptor.

19. The method of claim 1 comprising the step of selectively interacting the cannabinoid compound with predominately one type of cannabinoid receptor.

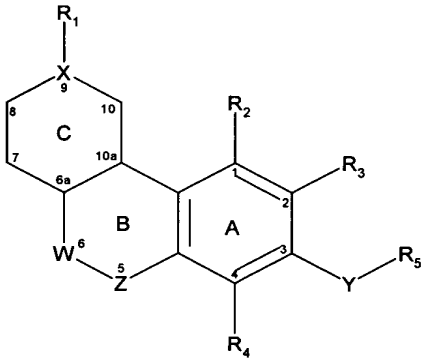
20. A test kit for detecting a fluorescent property comprising a cannabinoid compound having an endogenous fluorescent property and the structural formula



wherein:

Y comprises O, S, NH, N-alkyl, N-substituted alkyl, N=N, C=C or C≡C; and W comprises C=O and the C ring has a double bond in the 6a-10 position; or R1 comprises =O and the C ring has a double bond in the 10-10a position; or W comprises C=O and the C ring is aromatic.

21. A compound of formula I, and physiologically acceptable salts thereof,



I

wherein:

the C ring contains one double bond;

W comprises C=O, C=S or $C=CH_2$;

X comprises C, CH, N, S, O, SO or SO_2;

Y comprises O, S, NH, N-alkyl, N=N, C=C or C≡C;

Z comprises O, NH, N-alkyl where the alkyl group has 1 to about 5 carbon atoms or N-substituted alkyl, where the alkyl group has 1 to about 5 carbon atoms and is substituted with at least one substituent group in any possible position;

when X is S, O, SO or SO_2, R_1 is not present, or

when X is N, R_1 comprises H, alkyl, alkoxy-alkyl, alkylmercapto, alkylamino, SO_3alkyl, $SO_2NQ_1Q_2$, $CONQ_1Q_2$ or alkyl substituted in any possible position with at least one member selected from OH, CHO, COOH, C(halogen)$_3$, N_3, NCS, CN, PO_3H_2, SO_3H, or SO_3alkyl; or

when X is C or CH, R_1 comprises any possible member selected from H, halogen, N_3, NCS, CN, NO_2, NQ_1Q_2, =O, OQ_3, OAc, O-acyl, O-aroyl, NH-acyl, NH-aroyl, CHO, C(halogen)$_3$, $COOQ_3$, PO_3H_2, SO_3H, SO_3alkyl, $SO_2NQ_1Q_2$, $CONQ_1Q_2$, $=CH_2$, alkyl, alcohol, alkoxy, alkylmercapto, alkylamino, di-alkylamino or alkyl substituted in any possible position with at least substituent group,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 comprises H, alkyl, alcohol, or alkyl-NQ_1Q_2;

R_2 comprises H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, NQ_1Q_2, $COOQ_3$, OQ_3, CQ_3, C(halogen)$_3$, alkyl-hydroxyl, NH-COalkyl, NH-COaryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T_1, NH-alkyl-T_1, NH-T_1, SO_3alkyl, $SO_2NQ_1Q_2$,

T_1 is in any possible position and comprises PO_3H, SO_3H, an alkyl

group containing from 1 to about 16 carbons, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring or NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring or a heteroaromatic ring,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 comprises H, alkyl, alcohol, or alkyl-NQ_1Q_2;

R_3 comprises H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 or an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members;

R_4 comprises H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 or an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 comprises -D_1-D_2-T_2 or -D_2-T_2,

D_1, if present, comprises an alkyl group, a carbocyclic ring, a

heterocyclic ring, N-alkyl or NH,

D_2 comprises an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, a heterocyclic ring, an aromatic ring, a heteroaromatic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3 or adamantan-2-ylidenemethyl-T_3, alkylamino, di-alkylamino or NH,

T_2 comprises, in any possible position, a substituent group or -CO-T_4,

T_3 comprises an alkyl group having from 0 to about 9 carbon atoms,

T_4 comprises H, C(halogen)$_3$, OH, NH_2, alkylamino, di-alkylamino, NO_2, alkyl, alkoxy, a heterocyclic ring or a heteroaromatic ring.

22. The compound of claim 21 wherein X is C or CH and R_1 comprises any possible member selected from H, halogen, $=CH_2$, an alkyl group having 1 to about 5 carbon atoms or an alkyl group having 1 to about 5 carbon atoms and substituted in any possible position with at least one member selected from OH, CHO, COOH, CH_2OH, halogen, C(halogen)$_3$, N_3, NCS, CN, PO_3H_2, SO_3H, or SO_3alkyl, $SO_2NQ_1Q_2$, $CONQ_1Q_2$ or NQ_1Q_2,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members.

23. The compound of claim 21 wherein R_5 comprises -D_1-D_2-T_2 or -D_2-T_2,

D_1, if present, comprises alkyl, a carbocyclic ring having 5 to 6 ring members, a heterocyclic ring having 5 to 6 ring members and 1,3 di-heteroatoms each independently selected from O, S, N and NH,

D_2 comprises an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3 or adamantan-2-ylidenemethyl-T_3, alkylamino, di-alkylamino or NH,

T_2 comprises, in any possible position, a substituent group or -CO-T_4,

T_3 comprises an alkyl group having from 0 to about 9 carbon atoms, and

T_4 comprises alkyl, a heterocyclic ring or a heteroaromatic ring.

24. The compound of claim 21 wherein:

the C ring comprises a double bond in the 6a-10a position;

W is C=O;

X comprises C or N;

Y comprises O, S, NH, N-alkyl, N=N, C=C or C≡C;

Z is O;

R_1 comprises OH, CH_2OH; halogen or $C(halogen)_3$;

R_2 comprises H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, NQ_1Q_2, $COOQ_3$, OQ_3, NH-COalkyl, NH-CO-aryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T_1, NH-alkyl-T_1, NH-T_1, SO_3alkyl, $SO_2NQ_1Q_2$ or $CONQ_1Q_2$,

T_1 is in any possible position and comprises PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring or NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring or a heteroaromatic ring,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 comprises H, alkyl, alcohol, or alkyl-NQ_1Q_2;

R_3 comprises H, OH, halogen, CN, N_3, NCS, NQ_1Q_2 or an alkyl group having

1 to about 4 carbon atoms,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members;

R_4 comprises H, OH, halogen, C-(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 or an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 comprises $-D_1-D_2-T_2$ or $-D_2-T_2$,

D_1, if present, comprises a carbocyclic ring, a heterocyclic ring, alkylamino or NH,

D_2 comprises an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3, or adamantan-2-ylidenemethyl-T_3, alkylamino, di-alkylamino or NH,

T_2 comprises, in any possible position, a substituent group or $-CO-T_4$,

T_3 comprises an alkyl group having from 0 to about 9 carbon atoms,

T_4 comprises H, C-(halogen)$_3$, OH, NH_2, NO_2, alkyl, alkoxy, alkylamino, di-alkylamino, a heterocyclic ring or a heteroaromatic ring.

25. The compound of claim 21 wherein:

the C ring comprises a double bond in the 6a-10a position;

W is C=O;

X comprises C or N;

Y comprises O, S, NH, N-alkyl, N=N, C=C or C≡C;

Z is O;

R_1 comprises OH, CH_2OH; halogen or C(halogen)$_3$;

R_2 comprises H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, C(halogen)$_3$, alcohol, NQ_1Q_2, $COOQ_3$, OQ_3, NH-COalkyl, NH-CO-aryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T_1, NH-alkyl-T_1, NH-T_1, SO_3alkyl, $SO_2NQ_1Q_2$ or $CONQ_1Q_2$,

T_1 is in any possible position and comprises PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring or NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring or a heteroaromatic ring,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 comprises H, alkyl, alcohol, or alkyl-NQ_1Q_2;

R_3 comprises H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 or an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members;

R_4 comprises H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 or an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 comprises $-D_1-D_2-T_2$ or $-D_2-T_2$,

D_1, if present, comprises alkyl, a carbocyclic ring having 4 to 6 ring members or a heterocyclic ring having 4 to 6 ring members and 1,3 di-heteroatoms each heteroatom independently selected from O, S and N,

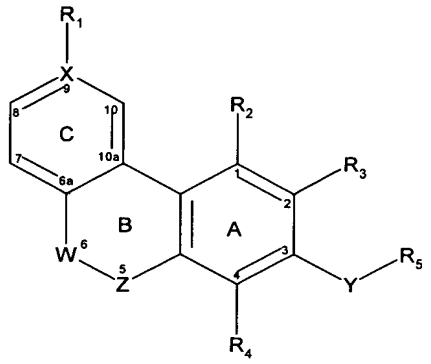
D_2 comprises an alkyl group having from one to about sixteen carbon atoms, alkylamino, d-alkylamino, NH, a bicyclic ring, a tricyclic terpine, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3 or adamantan-2-ylidenemethyl-T_3,

T_2 comprises, in any possible position, a substituent group or $-CO-T_4$,

T_3 comprises an alkyl group having from 0 to about 9 carbon atoms,

T_4 comprises alkyl, C(halogen)$_3$ aminoalkyl, di-aminoalkyl, NH2, a heterocyclic ring or a heteroaromatic ring.

26. The compound of formula II, and physiologically acceptable salts thereof,



II

wherein:

W comprises C=O, C=S, or $C=CH_2$;

X comprises C, CH or N;

Y comprises O, S, NH, N-alkyl, N=N, C=C or C≡C;

Z comprises O, NH, N-alkyl where the alkyl group has 1 to about 5 carbon atoms or N-substituted alkyl, where the alkyl group has 1 to about 5 carbon atoms and is substituted with at least one substituent group in any possible position;

R_1 comprises any possible member selected from H, halogen, $C(halogen)_3$, N_3, NCS, CN, NO_2, NQ_1Q_2, OQ_3, OAc, O-acyl, O-aroyl, NH-acyl, NH-aroyl, CHO, $C(halogen)_3$, $COOQ_3$, PO_3H_2, SO_3H, SO_3alkyl, $SO_2NQ_1Q_2$, $CONQ_1Q_2$, alkyl, alkyl substituted in any possible position with at least one substituent group,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 comprises H, alkyl, alcohol, or alkyl-NQ_1Q_2;

R_2 comprises H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, $C(halogen)_3$, alcohol, NQ_1Q_2, $COOQ_3$, OQ_3, alkyl-hydroxyl, NH-COalkyl, NH-COaryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, $SO_2NQ_1Q_2$, $CONQ_1Q_2$, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T1, NH-alkyl-T_1, NH-T_1, SO_3alkyl, $SO_2NQ_1Q_2$,

T_1 is in any possible position and comprises PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring or NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring or a heteroaromatic ring,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 comprises H, alkyl, alcohol, or alkyl-NQ_1Q_2;

R_3 comprises H, OH, halogen, $C(halogen)_3$, CN, N_3, NCS, NQ_1Q_2 or C1 to C4 alkyl,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members;

R_4 comprises H, OH, halogen, $C(halogen)_3$, CN, N_3, NCS, NQ_1Q_2 or C1 to C4 alkyl;

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 comprises $-D_1-D_2-T_2$ or $-D_2-T_2$,

D_1, if present, comprises alkyl, a carbocyclic ring, a heterocyclic ring, alkylamino or NH,

D_2 comprises an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, a heterocyclic ring, an aromatic ring, a heteroaromatic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3, or adamantan-2-ylidenemethyl-T_3, alkylamino, di-alkylamino or NH,

T_2 comprises, in any possible position, a substituent group or $-CO-T_4$,

T_3 comprises an alkyl group having from 0 to about 9 carbon atoms,

T_4 comprises H, C(halogen)$_3$, OH, NH_2, NO_2, alkyl, alkoxy, a heterocyclic ring or a heteroaromatic ring.

27. The compound of claim 26 wherein W comprises C=O.

28. The compound of claim 26 wherein R_1 comprises any possible member selected from H, halogen, C(halogen)$_3$, alkyl amino, di-alkylamino, NH_2, OH, an alkyl group having 1 to about 5 carbon atoms or an alkyl group having 1 to about 5 carbon atoms and substituted in any possible position with at least one member selected from OH, CHO, COOH, C(halogen)$_3$, N_3, NCS, CN, PO_3H_2, SO_3H or SO_3alkyl.

29. The compound of claim 26 wherein R_5 comprises $-D_1-D_2-T_2$ or $-D_2-T_2$,

D_1, if present, comprises alkyl, a carbocyclic ring having 4 to 6 ring members or a heterocyclic ring having 4 to 6 ring members and 1,3 di-heteroatoms each heteroatom independently selected from O, S and N,

D_2 comprises an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic terpine, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3 or adamantan-2-ylidenemethyl-T_3, alkylamino, di-alkylamino or NH

T_2 comprises, in any possible position, a substituent group or $-CO-T_4$,

T_3 comprises an alkyl group having from 0 to about 9 carbon atoms,

and

T_4 comprises alkyl, a heterocyclic ring or a heteroaromatic ring.

30. The compound of claim 26 wherein:

W is C=O;

X comprises C or N;

Y comprises O, S, NH, N-alkyl, N=N, C=C or C≡C;

Z is O;

R_1 comprises methyl, OH, CH_2OH; halogen or C(halogen)$_3$;

R_2 comprises H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, C(halogen)$_3$, alcohol, NQ_1Q_2, $COOQ_3$, OQ_3, NH-COalkyl, NH-CO-aryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T_1, NH-alkyl-T_1, NH-T_1, SO_3alkyl, $SO_2NQ_1Q_2$ or $CONQ_1Q_2$,

T_1 is in any possible position and comprises PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring or NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring or a heteroaromatic ring,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 comprises H, alkyl, alcohol, or alkyl-NQ_1Q_2;

R_3 comprises H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 or an alkyl

group having 1 to about 4 carbon atoms,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members;

R_4 comprises H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 or an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 comprises $-D_1-D_2-T_2$ or $-D_2-T_2$,

D_1, if present, comprises alkyl, a carbocyclic ring, a heterocyclic ring, alkylamino or NH,

D_2 comprises an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3, or adamantan-2-ylidenemethyl-T_3, alkylamino, di-alkylamino or NH,

T_2 comprises, in any possible position, a substituent group or $-CO-T_4$,

T_3 comprises an alkyl group having from 0 to about 9 carbon atoms,

T_4 comprises H, C(halogen)$_3$, OH, NH_2, NO_2, alkyl, alkoxy, alkylamino, di-alkylamino, a heterocyclic ring or a heteroaromatic ring.

31. The compound of claim 26 wherein:

W is C=O;

X comprises C or N;

Y comprises O, S, NH, N-alkyl, N=N, C=C or C≡C;

Z is O;

R_1 comprises methyl, OH or CH_2OH;

R_2 comprises H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, $C(halogen)_3$, alcohol, NQ_1Q_2, $COOQ_3$, OQ_3, NH-COalkyl, NH-CO-aryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T_1, NH-alkyl-T_1, NH-T_1, SO_3alkyl, $SO_2NQ_1Q_2$ or $CONQ_1Q_2$,

T_1 is in any possible position and comprises PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring or NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring or a heteroaromatic ring,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 comprises H, alkyl, alcohol, or alkyl-NQ_1Q_2;

R_3 comprises H, OH, halogen, $C(halogen)_3$, CN, N_3, NCS, NQ_1Q_2 or an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members;

R_4 comprises H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 or an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 comprises $-D_1-D_2-T_2$ or $-D_2-T_2$,

D_1, if present, comprises alkyl, a carbocyclic ring having 4 to 6 ring members or a heterocyclic ring having 4 to 6 ring members and 1,3 di-heteroatoms each heteroatom independently selected from O, S and N,

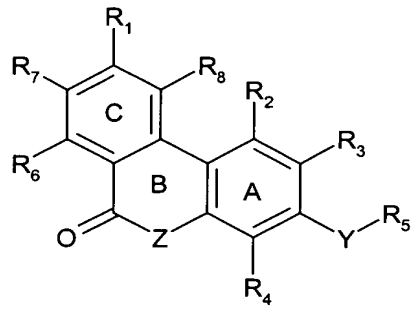
D_2 comprises an alkyl group having from one to about sixteen carbon atoms, alkylamino, di-alkylamino, NH, a bicyclic ring, a tricyclic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3 or adamantan-2-ylidenemethyl-T_3,

T_2 comprises, in any possible position, a substituent group or $-CO-T_4$,

T_3 comprises an alkyl group having from 0 to about 9 carbon atoms, and

T_4 comprises alkyl, C(halogen)$_3$ aminoalkyl, di-aminoalkyl, NH2, a heterocyclic ring or a heteroaromatic ring.

32. The compound of formula III, and physiologically acceptable salts thereof,

III 

wherein:

Y comprises CH_2, $CH(CH_3)$, $C(CH_3)_2$, a carbocyclic ring having 4 to 6 ring members or a heterocyclic ring having 4 to 6 ring members with 1 or 2 heteroatoms;

Z comprises O, S, NH, N-alkyl where alkyl comprises 1 to about 5 carbon atoms;

R_1 comprises H, halogen, N_3, NCS, CN, NO_2, NQ_1Q_2, =O, OQ_3, OAc, O-acyl, O-aroyl, NH-acyl, NH-aroyl, CHO, C(halogen)$_3$, $COOQ_3$, PO_3H_2, SO_3H, SO_3alkyl, $SO_2NQ_1Q_2$, $CONQ_1Q_2$, $=CH_2$, alkyl, alcohol, alkoxy, alkylmercapto, alkylamino, di-alkylamino or alkyl substituted in any possible position with at least one member selected from a substituent group;

R_2 comprises H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, C-(halogen)$_3$, alcohol, NQ_1Q_2, $COOQ_3$, OQ_3, NH-COalkyl, NH-COaryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, alkyl-hydroxyl, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T_1, NH-alkyl-T_1, NH-T_1, SO_3alkyl, $SO_2NQ_1Q_2$ or $CONQ_1Q_2$,

T_1 is in any possible position and comprises PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbons, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring or NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring or a heteroaromatic ring,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members;

Q_3 comprises H, alkyl, alcohol, or alkyl-NQ_1Q_2;

R_3, R_4, R_6, R_7, or R_8 each independently comprise H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 or an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 comprises -D_1-D_2-T_2 or -D_2-T_2,

D_1, if present, comprises alkyl, a carbocyclic ring, a heterocyclic ring.

D_2 comprises an alkyl group having from one to about sixteen carbon atoms, alkylamino, di-alkylamino, NH, a bicyclic ring, a tricyclic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3, or adamantan-2-ylidenemethyl-T_3,

T_2 comprises, in any possible position, a substituent group, -CO-T_4, a heterocyclic ring, a heterobicyclic ring structure, a heterotricyclic ring structure, a heteropolycyclic ring structure or a heteroaromatic ring with or without a substituent group,

T_3 comprises an alkyl group having from 0 to about 9 carbon atoms,

T_4 comprises H, C(halogen)$_3$, OH, NH_2, NO_2, alkyl, alkoxy, a heterocyclic ring or a heteroaromatic ring;

with the proviso that:

when R_3, R_4, R_6, R_7 and R_8 are each H; R_1 is methyl; and R_2 is OH, then Y-R_5 can not be $C(CH_3)_2(CH2)_5CH_3$, $CH(CH_2CH_3)_2$ or $CH2(CH_2)_3CH_3$;

when R_3, R_4, R_6, R_7 and R_8 are each H; R_1 is methyl; and Y-R_5 is n-pentyl, then R_2 can not be $OCOCH_3$, $OCH(CH_3)COCH_3$, $OCH_2CH(OC_2H_5)_2$ or OCH_2CHO;

when R_3, R_4, R_6, R_7 and R_8 are each H; R_1 is bromide; and R_2 is OH, then Y-R_5 can not be n-pentyl;

when R_1 is CH_3; R_2 is OH; and one of R_7 and R_8 is OH and the other is H, Y-R_5 can not be n-pentyl;

when R_3, R_4, R_6, R_7 and R_8 are each H; formula III excludes compounds constructed by the combination of selecting R_1 from any of OH; OCH_3, OC_2H_5, OC_3H_7, OC_4H_9, and selecting Y-R_5 from any of $(CH_2)_qCH_3$, $C(CH_3)_2(CH_2)_qCH_3$; $(CH_2)_q$-C≡C; C≡C$(CH_2)_q$; alkyl substituted adamantyl, as well as selecting Y from any five member ring and R_5 from $(CH_2)_qCH_3$, wherein q is an integer from 3-6.

33. The compound of claim 32, wherein:

R_1 comprises halogen, C(halogen)$_3$, CH_2OH, a substituent group, an alkyl group having 1 to about 5 carbon atoms or an alkyl group having 1 to about 5 carbon atoms and substituted in any possible position with at least one member selected from a substituent group;

R_2 comprises H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, C(halogen)$_3$, alcohol, NQ_1Q_2, alkyl-hydroxyl, $COOQ_3$, OQ_3, NH-COalkyl, NH-COaryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T_1, NH-alkyl-T_1, NH-T_1, SO_3alkyl, $SO_2NQ_1Q_2$ or $CONQ_1Q_2$,

T_1 is in any possible position and comprises PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbons, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring or NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring or a heteroaromatic ring,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 comprises H, alkyl, alcohol, or alkyl-NQ_1Q_2;

R_3, R_4, R_6, R_7 and R_8 comprises H, OH, halogen, C(halogen)$_3$, CN, N_3, NCS, NQ_1Q_2 or an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 comprises -D_1-D_2-T_2 or -D_2-T_2,

D_1, if present, comprises an alkyl group, a carbocyclic ring or a heterocyclic ring,

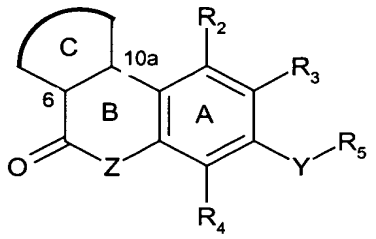
D_2 comprises an alkyl group having from one to about sixteen carbon atoms, alkylamino, di-alkylamino, NH, a bicyclic ring, a tricyclic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3 or adamantan-2-ylidenemethyl-T_3,

T_2 comprises, in any possible position, a substituent group or -CO-T_4,

T_3 comprises an alkyl group having from 0 to about 9 carbon atoms,

T_4 comprises H, C(halogen)$_3$, OH, NH_2, alkylamino, di-alkylamino, NO_2, alkyl, alkoxy, a heterocyclic ring or a heteroaromatic ring.

34. The compound of formula IV, and physiologically acceptable salts thereof,



IV

wherein:

the "C" Ring comprises a carbocyclic ring, a bicyclic ring structure, a tricyclic ring structure, a heterocyclic ring, a heterobicyclic ring structure, or a heteroaromatic ring;

Y comprises CH_2, $CHCH_3$, $C(CH_3)_2$, a carbocyclic ring, an aromatic ring, a heterocyclic ring or a heteroaromatic ring;

Z comprises O, S, NH or N-alkyl;

R_2 comprises H, OH, OCH_3, OPO_3H_2, OSO_3H, PO_3H_2, SO_3H, halogen, C-(halogen)$_3$, alcohol, NQ_1Q_2, $COOQ_3$, OQ_3, NH-COalkyl, NH-COaryl, O-COalkyl, O-COalkyl-T_1, O-CO-T_1, NH-COalkyl-T_1, NH-CO-T_1, O-alkyl-T_1, O-T_1, NH-alkyl-T_1, NH-T_1, SO_3alkyl, $SO_2NQ_1Q_2$ or $CONQ_1Q_2$,

T_1 is in any possible position and comprises PO_3H, SO_3H, an alkyl group containing from 1 to about 16 carbons, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring or NQ_1Q_2,

T_1 may be substituted in any possible position with at least one member selected from a substituent group, OPO_3H_2, OSO_3H, PO_3H_2, a heterocyclic ring or a heteroaromatic ring,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members,

Q_3 comprises H, alkyl, alcohol, or alkyl-NQ_1Q_2;

R_3 and R_4 each independently comprise H, OH, halogen, C(halogen)$_3$, alcohol, CN, N_3, NCS, NQ_1Q_2 or an alkyl group having 1 to about 4 carbon atoms,

Q_1 and Q_2 each independently comprise H or alkyl, or

Q_1 and Q_2 together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or S, or

Q_1 and Q_2 together comprise part of an imide ring having about 5 to about 6 members; and

R_5 comprises -D_1-D_2-T_2 or -D_2-T_2,

D_1, if present, comprises alkyl, a carbocyclic ring or a heterocyclic ring,

D_2 comprises an alkyl group having from one to about sixteen carbon atoms, alkylamino, di-alkylamino, NH, a bicyclic ring, a tricyclic ring, 1-adamantyl-T_3, 2-adamantyl-T_3, adamantan-1-ylmethyl-T_3, or adamantan-2-ylidenemethyl-T_3,

T_2 comprises, in any possible position, a substituent group, -CO-T_4, a heterocyclic ring, a heterobicyclic ring structure, a heterotricyclic ring structure, a heteropolycyclic ring structure or a heteroaromatic ring with or without a substituent group,

T_3 comprises an alkyl group having from 0 to about 9 carbon atoms,

T_4 comprises H, halogen, OH, NH_2, NO_2, alkyl, alkoxy, a heterocyclic ring or a heteroaromatic ring, with the proviso that when the C ring is 4-methyl cyclohexane with a double bond between the 6 and 10a positions, then Y-R_5 can not be a saturated alkyl group;

with the proviso that:

when the C ring is a pyridine or N-methyl-pyridine structure having the nitrogen in the para position to the carbonyl of B ring; R_3 and R_4 are hydrogen;

then Y-R_5 can not be a straight or branched alkyl chain of 1 to 20 carbon atoms;

when the C ring is 4-methyl hexane having the methyl in the para position to the carbonyl of B ring; R_3 and R_4 are hydrogen; then Y-R_5 can not be CH_2COOH or a straight or branched chain alkyl of 1 to 20 carbon atoms;

when the C ring is a N-methyl tetrahydropridine having a nitrogen in the para position to the carbonyl of the B ring; R_3 and R_4 are hydrogen; R_2 is OH; then Y-R_5 can not be OH, N-C_5H_{11}, $CH(CH_3)(CH_2)_4CH_3$, (CH2)11CH_3, or CH(cyclohexanyl);

when the C ring is a tetrahydroprydine having a nitrogen in the para position to the carbonyl of the B ring; R_3 and R_4 are hydrogen; Y-R_5 is 1.2-dimethylhexanyl; R_2 is OH; then the nitrogen of C ring can not be substituted with H, CHC_6H_6, CH_3 or $CH_2C{\equiv}CH$;

when the C ring is a N-benzyl-tetrahydropridine having a nitrogen in the para position to the carbonyl of the B ring; R_3 and R_4 are hydrogen; R_2 is OH; then Y-R_5 can not be $CH(CH_3)CH_2COOCH_3$, $CH(CH_3)CH_2COOH$, $CH(CH_3)CH_2COCH_3$, $CH(CH_3)CH_2COOH$ CH_2CH_3 or $CH(CH_3)CH_2C(CH_3)_2OH$.

35. A pharmaceutical composition comprising a therapeutically effective amount of at least one compound selected from claim 21, claim 26, claim 32, claim 34 or a physiologically acceptable salt thereof.

36. A method of stimulating a cannabinoid receptor in an individual or animal comprising administering to the individual or animal a therapeutically effective amount of at least one compound selected from claim 21, claim 26, claim 32, claim 34 or a physiologically acceptable salt thereof.

37. A method of selectively stimulating CB2 cannabinoid receptors in an individual or animal comprising administering to the individual or animal a therapeutically effective amount of at least one compound selected from claim 21, claim 26, claim 32, claim 34 or a physiologically acceptable salt thereof.

38. A method of treating a condition comprising administering to an individual or animal having the conditon a therapeutically effective amount of at least one compound selected from claim 21, claim 26, claim 32, claim 34 or a physiologically acceptable salt thereof.

39. A method of providing a physiological response in an individual or animal comprising administering to the individual or animal a therapeutically effective amount of at least one compound selected from claim 21, claim 26, claim 32, claim 34 or a physiologically acceptable salt thereof.

40. A method of treating a condition selected from central and peripheral pain, neuropathy, neurodegenerative diseases including multiple sclerosis, Parkinson's disease, Huntington's chorea, Alzheimer's disease; mental disorders such as schizophrenia and depression, endotoxic shock, hypotensive shock; or of modulating appetite; or of modulating the immune system; of of reducing fertility; or of treating diseases associated with motor function such as Tourette's syndrome; or of treating inflammation; or of providing neuroprotection; or of suppressing memory; or of producing peripheral vasodilation; or of treating epilepsy, glaucoma, nausea associated with cancer chemotherapy or nausea associated with Aids wasting syndrome comprising administering to an individual or animal having the conditon a therapeutically effective amount of at least one compound selected from claim 21, claim 26, claim 32, claim 34 or a physiologically acceptable salt thereof.